FOR OFFICIAL USE ONLY 181788 ACCESS DB # _____

PLEASE PRINT CLEARLY

**Scientific and Technical Information Center**

# SEARCH REQUEST FORM

Requester's Full Name: Gambel (ISTIC) Examiner #: 80789 Date: 3/8/06

Art Unit: 1614 Phone Number: 22904 Serial Number: 10/712,423

Location (Bldg/Room#): 3A44 (Mailbox #): 3C70 Results Format Preferred (circle): PAPER DISK

**********

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: Methods for Inhibiting Cancer formation

Inventors (please provide full names): _____

Earliest Priority Date: 12/09/02

Search Topic:

*Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.*

*For Sequence Searches Only* *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search chemical structure of claims 9, & cancer.

Thanks.

**********

| STAFF USE ONLY | Type of Search | Vendors and cost where applicable |
|---|---|---|
| Searcher: _____ | ____ NA Sequence (#) | ____ STN ____ Dialog |
| Searcher Phone #: _____ | ____ AA Sequence (#) | ____ Questel/Orbit ____ Lexis/Nexis |
| Searcher Location: _____ | ____ Structure (#) | ____ Westlaw ____ WWW/Internet |
| Date Searcher Picked Up: _____ | ____ Bibliographic | ____ In-house sequence systems |
| Date Completed: _____ | ____ Litigation | ____ Commercial ____ Oligomer ____ Score/Length ____ Interference ____ SPDI ____ Encode/Transl ____ Other (specify) |
| Searcher Prep & Review Time: _____ | ____ Fulltext | |
| Online Time: _____ | ____ Other | |

# STIC Search Report
## Biotech-Chem Library

STIC Database Tracking Number: 181788

| TO: | From: |
|---|---|
| **Shirley Gembeh**<br>**Location: REM-3A44/3C70**<br>**Art Unit: 1614**<br>**Thursday, March 09, 2006**<br><br>**Case Serial Number: 10/712423** | **Paul Schulwitz**<br>**Location: Biotech-Chem Library**<br>**REM-1A65**<br>**Phone: 571-272-2527**<br><br>**Paul.schulwitz@uspto.gov** |

## Search Notes

Examiner Gembeh,

Please review the attached search results.
If you have any questions or if you would like to refine the search query, please feel free to contact me at any time.

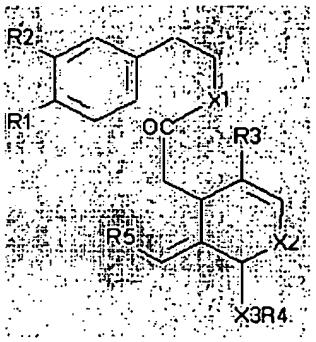
Thank you for using STIC search services!

Paul Schulwitz
Technical Information Specialist
REM-1A65
571-272-2527

WHAT IS CLAIMED IS:

1. A method for treating a medical condition which involves cancer in a subject, the method comprising administering to a subject in need of such treatment a therapeutically effective amount of a pharmaceutical composition having chemopreventive activity which contains as an active ingredient a therapeutically effective quantity of a compound of the formula or its enantiomer:

ID657414
10153003




wherein R1 and R2 are functional groups selected from the group of hydroxyl, -NH2, -SH ;

R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3;

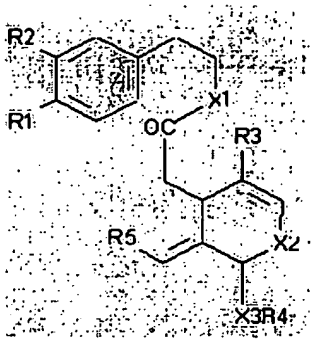
X1-X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3, and CH3.

2. The method of Claim 1 wherein the pharmaceutical composition includes the pharmaceutically acceptable carrier or diluent.

3. A method of inhibiting the growth, motility, invasiveness and metastasis of cancer cells comprising contacting said cells with a pharmaceutical composition in an amount sufficient to inhibit the cancer or recurrence thereof, said pharmaceutical composition containing an effective amount of a compound of the following formula or its enantiomer:




wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3.

X1 – X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide, and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and CH3.

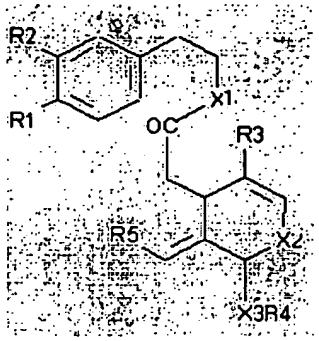
4. The method of Claim 3 wherein the pharmaceutical composition includes a pharmaceutically acceptable carrier or diluent.

5. The method of Claim 3 wherein said inhibition of the survival, growth, motility, invasiveness and metastasis of cancer cells occur *in vivo*.

6. The method of Claim 3 wherein said inhibition of the survival, growth, motility, invasiveness and metastasis of cancer cells occurs *in vitro*.

7. A method for treating a medical condition in which involves cancer in a subject, said method comprising administering to a subject in need of such treatment a therapeutic amount of a pharmaceutical composition operative to effectuate anti-survival, anti-growth, anti-motility, anti-invasiveness and anti-metastasis activity associated with said cancer, the

pharmaceutical composition containing as an active ingredient at least one composition produced by the hydrolysis of a compound of the following formula or its enantiomer:




wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

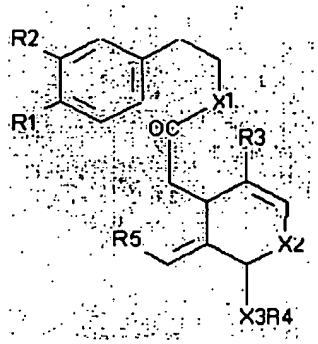
R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3;

X1-X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3, and CH3.

8. A method of inhibiting cancer cell growth comprising contacting the cancer cells with a pharmaceutical composition in an amount sufficient to inhibit growth thereof, said pharmaceutical composition containing an effective amount of a compound selected from the group consisting of at one composition produced by the hydrolysis of a compound of the following formula or its enantiomer:




wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

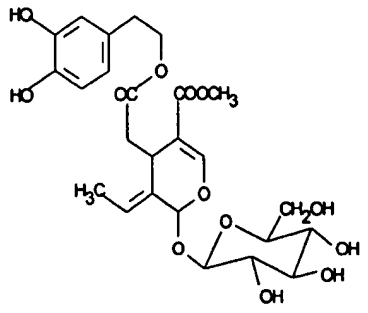
R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3;

X1-X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

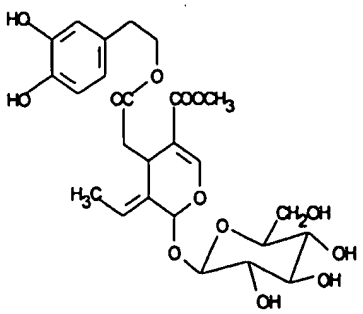
R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3, and CH3.

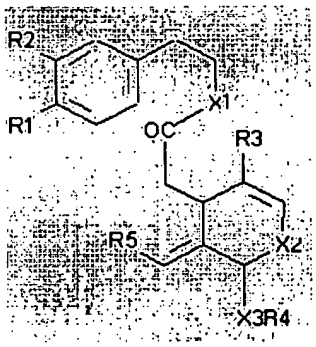
9. The method of Claim 1 wherein said composition comprises the following formula or its enantiomer:



10. The method of Claim 3 wherein said composition comprises the following formula or its enantiomer:



11. A method of treating cancer in an animal in need of such treatment that is comprised of administering to said patient a therapeutically effective amount of a compound having the following structure or it enantiomer:



wherein R1 and R2 are functional groups selected from the groups consisting of hydroxyl, -NH2, -SH;

R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3.

X1 – X3 are functional groupsmne selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide, and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3, and CH3;

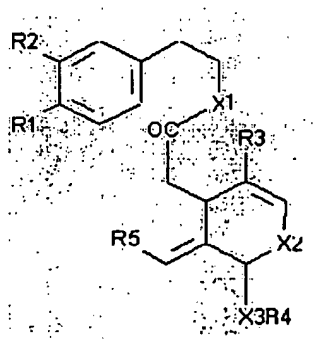
or a pharmaceutically acceptable salt, prodrug or hydrate thereof.

12. The method of treating cancer in accordance with Claim 11 wherein said cancer is selected from the group of cancers consisting of the Acute Lymphoblastic Leukemia, Adult; Acute Lymphoblastic Leukemia, Childhood; Acute Myeloid Leukemia, Adult; Adrenocortical Carcinoma; Adrenocortical Carcinoma, Childhood; AIDS-Related Lymphoma;AIDS-Related Malignancies; Anal Cancer; Astrocytoma, Childhood Cerebellar; Astrocytoma, Childhood Cerebral; Bile Duct Cancer, Extrahepatic; Bladder Cancer; Bladder Cancer, Childhood; Bone Cancer, Osteosarcoma/Malignant Fibrous Histiocytoma; Brain Stem Glioma, Childhood; Brain Tumor, Adult; Brain Tumor, Brain Stem Glioma, Childhood; Brain Tumor, Cerebellar Astrocytoma, Childhood; Brain Tumor, Cerebral Astrocytoma/Malignant Glioma, Childhood; Brain Tumor, Ependymoma, Childhood; Brain Tumor, Medulloblastoma, Childhood; Brain Tumor, Supratentorial Primitive Neuroectodermal Tumors, Childhood; Brain Tumor, Visual Pathway and Hypothalamic Glioma, Childhood; Brain Tumor, Childhood (Other); Breast Cancer; Breast Cancer and Pregnancy; Breast Cancer, Childhood; Breast Cancer, Male; Bronchial Adenomas/Carcinoids, Childhood; Carcinoid Tumor, Childhood; Carcinoid Tumor,Gastrointestinal; Carcinoma, Adrenocortical; Carcinoma, Islet Cell; Carcinoma of Unknown Primary; Central Nervous System Lymphoma, Primary; Cerebellar Astrocytoma, Childhood; Cerebral Astrocytoma/Malignant Glioma, Childhood; Cervical Cancer; Childhood Cancers; Chronic Lymphocytic Leukemia; Chronic Myelogenous Leukemia; Chronic Myeloproliferative Disorders; Clear Cell Sarcoma of Tendon Sheaths; Colon Cancer; Colorectal Cancer, Childhood; Cutaneous T-Cell Lymphoma; Endometrial Cancer; Ependymoma, Childhood; Epithelial Cancer, Ovarian; Esophageal Cancer; Esophageal Cancer, Childhood; Ewing's Family of Tumors; Extracranial Germ Cell Tumor, Childhood; Extragonadal Germ Cell Tumor; Extrahepatic Bile Duct Cancer; Eye Cancer, Intraocular Melanoma; Eye Cancer, Retinoblastoma; Gallbladder Cancer; Gastric (Stomach) Cancer; Gastric (Stomach) Cancer, Childhood; Gastrointestinal Carcinoid Tumor; Germ Cell Tumor, Extracranial, Childhood; Germ Cell Tumor, Extragonadal; Germ Cell Tumor, Ovarian; Gestational Trophoblastic Tumor; Glioma, Childhood Brain Stem; Glioma, Childhood Visual Pathway and Hypothalamic; Hairy

Cell Leukemia; Head and Neck Cancer; Hepatocellular (Liver) Cancer, Adult (Primary); Hepatocellular (Liver) Cancer, Childhood (Primary); Hodgkin's Lymphoma, Adult; Hodgkin's Lymphoma, Childhood; Hodgkin's Lymphoma During Pregnancy; Hypopharyngeal Cancer; Hypothalamic and Visual Pathway Glioma, Childhood; Intraocular Melanoma; Islet Cell Carcinoma (Endocrine Pancreas); Kaposi's Sarcoma; Kidney Cancer ; Laryngeal Cancer; Laryngeal Cancer, Childhood; Leukemia, Acute Lymphoblastic, Adult; Leukemia, Acute Lymphoblastic, Childhood; Leukemia, Acute Myeloid, Adult; Leukemia, Acute Myeloid, Childhood; Leukemia, Chronic Lymphocytic; Leukemia, Chronic Myelogenous; Leukemia, Hairy Cell; Lip and Oral Cavity Cancer; Liver Cancer, Adult (Primary); Liver Cancer, Childhood (Primary); Lung Cancer, Non-Small Cell; Lung Cancer, Small Cell; Lymphoblastic Leukemia, Adult Acute; Lymphoblastic Leukemia, Childhood Acute; Lymphocytic Leukemia, Chronic; Lymphoma, AIDS-Related; Lymphoma, Central Nervous System (Primary); Lymphoma, Cutaneous T-Cell; Lymphoma, Hodgkin's, Adult; Lymphoma, Hodgkin's, Childhood; Lymphoma, Hodgkin's During Pregnancy; Lymphoma, Non-Hodgkin's, Adult; Lymphoma, Non-Hodgkin's, Childhood; Non-Hodgkin's During Pregnancy; Lymphoma, Primary Central Nervous System; Macroglobulinemia, Waldenström's; Male Breast Cancer; Malignant Mesothelioma, Adult; Malignant Mesothelioma, Childhood; Medulloblastoma, Childhood; Melanoma; Melanoma, Intraocular; Merkel Cell Carcinoma; Mesothelioma, Malignant; Metastatic Squamous Neck Cancer with Occult Primary; Multiple Endocrine Neoplasia Syndrome, Childhood; Multiple Myeloma/Plasma Cell Neoplasm; Mycosis Fungoides; Myelodysplastic Syndromes; Myelogenous Leukemia, Chronic; Myeloid Leukemia, Childhood Acute; Myeloma, Multiple; Myeloproliferative Disorders, Chronic; Nasal Cavity and Paranasal Sinus Cancer; Nasopharyngeal Cancer; Nasopharyngeal Cancer, Childhood; Neuroblastoma; Non-Hodgkin's Lymphoma, Adult; Non-Hodgkin's Lymphoma, Childhood; Non-Hodgkin's Lymphoma During Pregnancy; Non-Small Cell Lung Cancer; Oral Cancer, Childhood; Oral Cavity and Lip Cancer; Oropharyngeal Cancer; Osteosarcoma/Malignant Fibrous Histiocytoma of Bone ;Ovarian Cancer, Childhood; Ovarian Epithelial Cancer; Ovarian Germ Cell Tumor; Ovarian Low Malignant Potential Tumor; Pancreatic Cancer; Pancreatic Cancer, Childhood; Pancreatic Cancer, Islet Cell; Paranasal Sinus and Nasal Cavity Cancer; Parathyroid Cancer; Penile Cancer; Pheochromocytoma; Pineal and Supratentorial Primitive Neuroectodermal Tumors, Childhood; Pituitary Tumor; Plasma Cell Neoplasm/Multiple

Myeloma; Pleuropulmonary Blastoma; Pregnancy and Breast Cancer; Pregnancy and Hodgkin's Lymphoma; Pregnancy and Non-Hodgkin's Lymphoma; Primary Central Nervous System Lymphoma; Primary Liver Cancer, Adult; Primary Liver Cancer, Childhood; Prostate Cancer; Rectal Cancer; Renal Cell (Kidney) Cancer; Renal Cell Cancer, Childhood; Renal Pelvis and Ureter, Transitional Cell Cancer; Retinoblastoma; Rhabdomyosarcoma, Childhood; Salivary Gland Cancer ;Salivary Gland Cancer, Childhood; Sarcoma, Ewing's Family of Tumors; Sarcoma, Kaposi's; Sarcoma (Osteosarcoma)/Malignant Fibrous Histiocytoma of Bone; Sarcoma, Rhabdomyosarcoma, Childhood; Sarcoma, Soft Tissue, Adult; Sarcoma, Soft Tissue, Childhood; Sezary Syndrome; Skin Cancer; Skin Cancer, Childhood; Skin Cancer (Melanoma); Skin Carcinoma, Merkel Cell; Small Cell Lung Cancer; Small Intestine Cancer; Soft Tissue Sarcoma, Adult; Soft Tissue Sarcoma, Childhood; Squamous Neck Cancer with Occult Primary, Metastatic; Stomach (Gastric) Cancer; Stomach (Gastric) Cancer, Childhood; Supratentorial Primitive Neuroectodermal Tumors, Childhood; T-Cell Lymphoma, Cutaneous; Testicular Cancer; Thymoma, Childhood; Thymoma and Thymic Carcinoma; Thyroid Cancer; Thyroid Cancer, Childhood; Transitional Cell Cancer of the Renal Pelvis and Ureter; Trophoblastic Tumor, Gestational; Unknown Primary Site, Carcinoma of, Adult; Unknown Primary Site, Cancer of, Childhood; Unusual Cancers of Childhood; Ureter and Renal Pelvis, Transitional Cell Cancer; Urethral Cancer; Uterine Cancer, Endometrial; Uterine Sarcoma; Vaginal Cancer; Visual Pathway and Hypothalamic Glioma, Childhood; Vulvar Cancer; Waldenström's Macroglobulinemia; Wilms' Tumor.

13. A method for conferring resistance to animal cells to thus render the cells resistant to infection by viral, bacterial, and parasitic organisms comprising contacting said cells with a pharmaceutical composition in an amount sufficient to confer resistance thereof, said pharmaceutical composition containing an effective amount of a compound of the following formula or its enantiomer:



wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3.

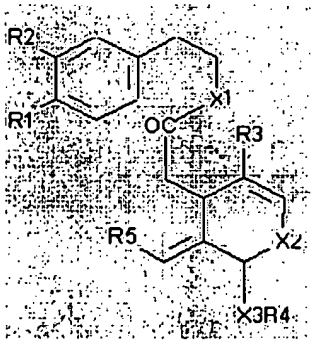
X1 – X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide, and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and CH3.

14. The method of treating diseases in accordance with Claim 13 wherein said cells are infected with HIV, malaria, helicobacter pylori, and vaginal yeast infections.

15. A method for treating a medical condition associated with blisters, ulcerations, scabs and scar formation, the method comprising administering to a subject in need of such treatment a therapeutically effective amount of a pharmaceutical composition which contains as an active ingredient thereof a compound of the following formula or its enantiomer:




wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3.

X1 – X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide, and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and CH3.

16. The method of treating diseases in accordance with Claim 15 wherein said diseases are selected from the group consisting of burns, scrapes, cuts, trauma, fibroids, cysts, keloid, acne, gastritis, vaginal, cervical, uterine, ovary, gastric, corneal, retinal, diabetic, AIDS-related scarring, iliac, and colon ulcers, interstitial lung disease, human fibrotic lung disease, human kidney disease, glomerular nephritis, nephritis associated with systemic lupus, peritoneal fibrosis, cystic fibrosis, liver fibrosis, myocardial fibrosis, pulmonary fibrosis, Grave's ophthalmopathy, drug induced ergotism, cardiovascular disease, cancer, Alzheimer's disease, scarring, scleroderma, glioblastoma in Li-Fraumeni syndrome, sporadic glioblastoma, myeloid leukemia, acute myelogenous leukemia, myelodysplastic syndrome, myeloproliferative syndrome, gynecological cancer, Kaposi's sarcoma, Hansen's disease, or inflammatory bowel disease not including collagenous colitis, renal fibrosis, abdominal adhesions, radiation induced fibrosis, obliterative bronchiolitis, silicosis lesions, or Tenon's capsule fibroproliferation, laser treatment for vascular birthmarks, tattoos, and traumatic scarring, vaginal yeast infections and ulcers of helicobactor pylori.

17. The method of Claim 1 wherein said composition is formulated as a tablet or elixer for oral administration.

18. The method of Claim 1 wherein said composition is administered via a route selected from the group consisting of intramuscular or intravenous administration.

19. The method of Claim 1 wherein said composition is administered via inhalation.

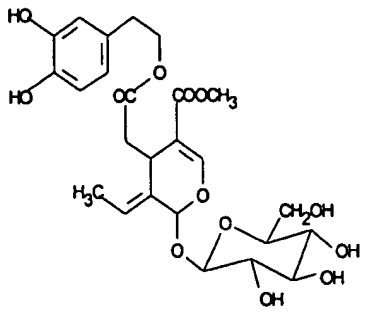
20. The method of Claim 11 wherein said compound is administered via a route selected from the group consisting of oral, buccal, rectal, parenteral, intraperitoneal, intradermal, transdermal, and intracheal.

21. The method of Claim 11 wherein said composition is formulated as a tablet or elixer for oral administration.

22. The method of Claim 11 wherein said composition is administered via a route selected from the group consisting of intramuscular or intravenous administration.

23. The method of Claim 11 wherein said composition is administered via inhalation.

24. The method of treating cancer in accordance with Claim 11 wherein said composition comprises the following formula or its enantiomer:




25. The method of Claim 7 when said at least one composition is selected from the group consisting of oleuropein aglycone, elenolic acid, beta-3, 4, - dihydroxyphenyethyl alcohol and methyl-o-methyl elenolate.

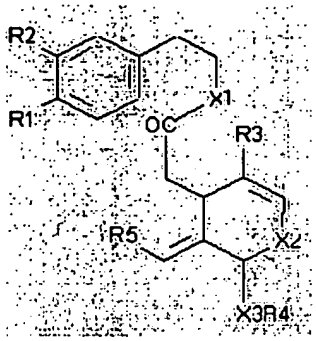
26. The method of Claim 8 wherein said at least one composition is selected from the group consisting of oleuropein aglycone, elenolic acid, beta-3, 4, - dihydroxyphenyethyl alcohol and methyl-o-methyl elenolate.

27. The method of Claim 3 wherein said inhibition of the survival, growth, motility, invasiveness and metastasis of animal cells occurs *in vivo*.

28. The method of Claim 3 wherein said inhibition of the survival, growth, motility, invasiveness and metastasis of animal cells occurs *in vitro*.

29. A method for selectively targeting and delivering an effective amount of a compound by the R4 moiety of a pharmaceutical compound in an amount sufficient to inhibit the

cancerous growth or recurrence of said cells, said compound having the following formula or its enantiomer:




wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

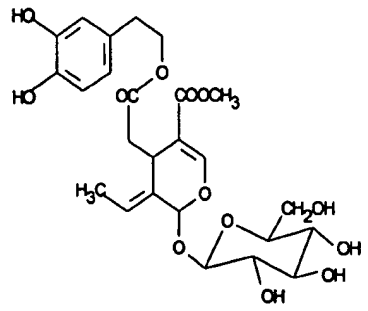
R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3.

X1 – X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide, and lipid; and

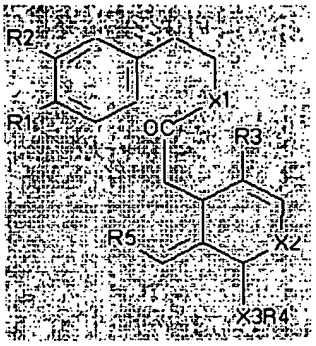
R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and CH3.

30. The method of Claim 27 wherein the R4 moiety is B-D-glucopyranose and said composition comprises the following formula or its enantiomer:



31. The method of Claim 27 wherein said cells are animal cells.

32. A method for disrupting and preventing the reorganization of the cytoskeleton whereby an animal cell assumes a spherical configuration and is unable to divide, move, or invade, the method comprising contacting the cell with an effective amount of a compound of the following formula or its enantiomer:




wherein R1 and R2 are functional groups selected from the group consisting of hydroxyl, -NH2, -SH;

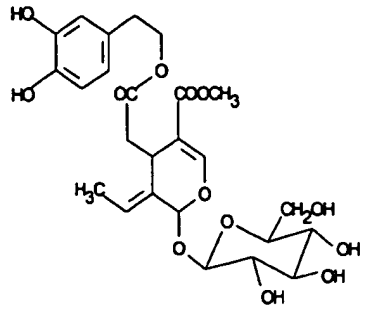
R3 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and COOCH3.

X1 – X3 are functional groups selected from the group consisting of oxygen, sulfur, -CH2-, or carboxy;

R4 is a functional group selected from the group consisting of hydrogen, C1-C6-alkoxy, glucose, B-D-glucopyranose, C1-C6-alkyl, C2-C6-alkenyl, C2-C6-alkynyl, aryl, hydroxyl, halogen NO2, NH3, carbohydrate, amino acid, nucleotide, and lipid; and

R5 is a functional group selected from the group consisting of hydrogen, C1 – C6-alkyl, C2 – C6 – alkenyl, C2 – C6 – alkynyl, aryl, hydroxyl, C1 – C6 – alkoxy, halogen, NO2, NH3 and CH3.

33. The method of Claim 30 wherein said composition comprises the following formula or its enantiomer:



34. The method of claim 32 wherein said cells are in a live animal.

35. The method of claim 32 wherein said cells are in a cancer patient.

36. The method of claim 32 wherein said cells are in an AIDS patient.